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CONSTRUCTION QUALITY ASSURANCE PLAN

SITE PREPARATION AND MATERIAL REMOVAL

FINAL DESIGN
ENVIRO-CHEM SUPERFUND SITE
ZIONSVILLE, INDIANA

Prepared For:
ENVIRONMENTAL CONSERVATION AND CHEMICAL CORPORATION TRUST

Prepared By:
AWD TECHNOLOGIES, INC.
INDIANAPOLIS, INDIANA

AWD PROJECT NUMBER 2259

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NOTICE

This document is a portion of the overall design package and, therefore, cannot be referenced, in whole or in part, as a standalone document for any other purpose.

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1.0 PROJECT DESCRIPTION AND SCOPE OF WORK

1.1 Introduction

This Construction Quality Assurance Plan (CQAP) for the Site Preparation and Material Removal (SPMR) phase of the site remediation has been developed to control all construction related activities performed during site preparation of the support zone for removal of onsite materials (Contract Drawings C-2 and C-3).

The components to be developed and constructed during this phase are:

- Site grading and drainage
- Access road and aggregate paving surfaces
- Decontamination pad
- Wastewater storage pad
- Support zone security fencing and gates

1.2 Support Zone Component Construction Rationale

The support zone components will provide control over movement of vehicles, personnel, and materials during the materials removal activities and the subsequent phase of site remediation, also referred to as the "Remedial Action" phase, which includes the Soil Vapor Extraction (SVE) system and final cover. Roadways will support the movement of heavy equipment and commercial traffic into and out of the support zone, and heavy equipment and removed materials leaving the remedial exclusion zone (EZ). Roadways will also handle transport of removed items to different processing areas (i.e., bulking of liquid wastes, tank dismantling, and loading).

The decontamination pad will support the cleaning operations associated with tanks and other metallic debris, and vehicles and personnel leaving the EZ.

The wastewater storage pad will provide an area for containment of liquid waste tankers and spill control in the event of a release.

Fencing will prohibit the entry of unauthorized traffic and personnel into the support zone, and prevent the transfer of potential contaminants and contaminated materials out of the EZ.

1.3 CQAP Objectives

This document is one of the remedial design plans required by Exhibit A to the Consent Decree for the ECC Site. This CQAP is intended to organize testing methods appropriate to construction during the SPMR phase, including, at a minimum, testing of the support zone construction materials prior to use, and testing of constructed components to ensure that they meet the Remedial Design. AWD Technologies, Inc. has prepared a separate CQAP which will control the construction efforts during the SVE system and final cover construction phase.

Quality assurance (QA) for the SPMR phase is the program of procedures, standards, guidelines, and systems stated in this CQAP. This program will produce sufficient quality in the work in order to meet the project requirements. Quality control (QC) will be maintained through implementation of the QA program by the Contractor using the Contractor QC Plan.

An Independent CQA Officer for the project will come from within the ranks of the ECC Trust's Engineer (Engineer) for the SPMR phase. The Independent CQA Officer is responsible for providing confidence to the Environmental Conservation and Chemical Corporation Trust (ECC Trust) that the construction activities are being done in accordance with the Remedial Design. A QA Management Plan will be developed by the Independent CQA Officer after submittal and approval of the Contractor QC Plan.

2.0 PROJECT ORGANIZATION AND RESPONSIBILITY

2.1 CQA/CQC Management Organization

Figure 2-1 presents a project organization chart which identifies areas of responsibility and lines of authority for the Site Preparation and Material Removal construction activities and indicates how personnel will interact.

2.2 Responsibilities

Responsibilities of project personnel are described below.

2.2.1 ECC Trust's Engineer

The ECC Trust's Engineer (Engineer) is employed by the ECC Trust and has overall authority for construction management with the following responsibilities:

- Provide site access authority for construction support and operation.
- Coordinate with regulatory authorities.
- Receive and coordinate design change requests and orders.
- Approve design revisions.
- Review claims, disputes, and other matters concerning applicability of work.
- Review certification of component and final project completion.
- Organize and provide progress and final reporting to the ECC Trust and regulatory authorities.
- Review all shop drawings and other submittals on the Submittal Register.

2.2.2 Independent Construction Quality Assurance (CQA) Officer

The Independent CQA Officer, and staff if required, is responsible for implementation of the CQAP through selective testing and inspection of the work being done by the Remedial Contractor. The Independent CQA Officer will be responsible for development of a QA Management Plan after submittal of the selected Contractor QC Plan. This plan will be directed toward review and evaluation (inspection, testing, etc.) of the Contractor's

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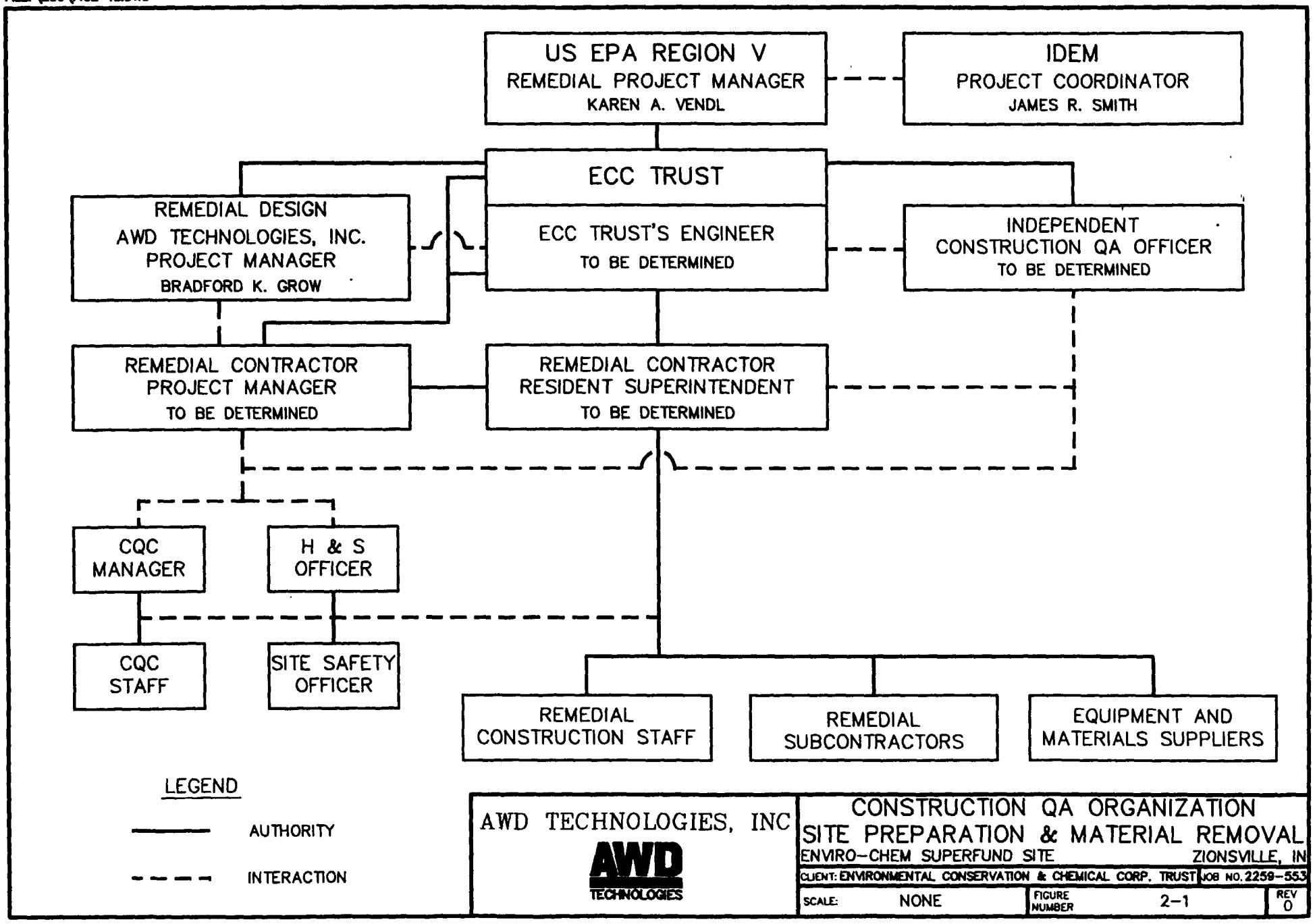

AWD TECHNOLOGIES, INC

AWD TECHNOLOGIES

CONSTRUCTION QA ORGANIZATION
SITE PREPARATION & MATERIAL REMOVAL
ENVIRO-CHEM SUPERFUND SITE ZIONSVILLE, IN

CLIENT: ENVIRONMENTAL CONSERVATION & CHEMICAL CORP. TRUST	JOB NO. 2259-553	
SCALE: NONE	FIGURE NUMBER 2-1	REV 0

2-2

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QC procedures and documentation tracking in order to assure that quality is built into the construction of the support zone components and that the least amount of time and effort will be necessary in provisions of documentation and reporting. Responsibilities of the Independent CQA Officer will include at least the following:

- Review routine QC testing and inspection reports.
- When appropriate, perform additional inspection and testing in addition to the Contractor's QC efforts, and submit report to the ECC Trust.
- Prepare a list of items which remain to be completed or corrected before certifications of completions are approved.
- Determine if certifications and other required submittals have been supplied by the Contractor.

2.2.3 Remedial Design Project Manager

The Remedial Design Project Manager has the responsibility to provide a design which is capable of fulfilling the requirements as set forth in the Consent Decree. AWD Technologies, Inc. is the Remedial Design Engineer for the SPMR phase. Unexpected site conditions or changes in construction methodology could occur requiring design changes, therefore, the Remedial Design Project Manager must be an active participant in progression of the project construction.

The Remedial Design Project Management staff will provide support to the Remedial Contractor Project Manager and staff in the decision-making process for any required design changes. Any such changes will be coordinated with the Engineer and fully documented. The Remedial Design Project Manager reports to the ECC Trust.

Responsibilities of the Remedial Design Project Manager and staff will include:

- Review all shop drawings and submittals.
- Interface with the Remedial Contractor and be available to visit the site as necessary or attend meetings at the request of the ECC Trust.
- Log shop drawings, samples, and interpret and clarify drawings and specifications as well as substitute proposals and field orders.
- Interpret plans and specifications, and consider and include suggested modifications to contract drawings and specifications, and reporting results to the ECC Trust.
- When requested, perform inspection and tests and submit report to the ECC Trust.
- Review routine testing and inspection reports and certification of completion.
- Prepare a list of items which remain to be completed or corrected before certifications of completion are approved.
- Conduct a final inspection with the ECC Trust and Remedial Contractor.
- Determine if certifications, O&M Manuals, and other required submittals have been supplied by the Remedial Contractor.
- Assist in assembling material needed for the project final report.

2.2.4 Remedial Contractor Project Manager

The Remedial Contractor Project Manager is responsible for overall management of the project, providing the necessary support to the Resident Superintendent, and serving as the primary interface between the Remedial Designer, the ECC Trust, and the Resident Superintendent.

Responsibilities of the Remedial Contractor Project Manager will include:

- Issue Final Certification of Completion Report

The Remedial Contractor Project Manager, in the performance of his duties, may require a staff of technical and administrative people that will report directly to him. The technical staff will provide the day-to-day technical backup as it relates to the construction activities.

The administrative staff is necessary to perform day-to-day administrative functions. These administrative functions include such activities as:

- Tracking costs, invoices, billing
- Filing
- Organization and filing of the documentation

2.2.5 Remedial Contractor Resident Superintendent

The Resident Superintendent has the responsibility to construct the support zone components in strict accordance with the Remedial Design, using the necessary manpower, construction procedures, and techniques. The Resident Superintendent shall retain the responsibility and authority to direct and manage his employees and the equipment used in constructing the support zone components. The Resident Superintendent reports to the Remedial Contractor Project Manager.

Responsibilities of the Resident Superintendent are outlined below:

- Manage the daily performance of construction staff and oversee subcontractor activities
- Prepare Daily Reports (Section 4.6.3)
- Prepare Progress Reports (Section 6.1.1)
- Maintain Submittal Register (Section 4.6.2)
- Prepare Report of Field Change (Section 4.6.6)
- Prepare Photographic Reporting Data Sheet (Section 4.6.8)

2.2.6 Remedial Contractor Quality Control (CQC) Manager

The CQC Manager and assigned staff are employed by the Remedial Contractor, however, they shall function independent of the Remedial Contractor Resident Superintendent and the Independent CQA Officer. The responsibility of the CQC Manager is to perform those activities specified in the CQAP which involves monitoring conformance to the Remedial Design by performing the necessary reviews, inspections, testing, and documentation.

The CQC Manager is responsible for overall management of the CQC system and has the authority to act independently in all quality control matters. The CQC Manager reports directly to the Remedial Contractor Project Manager for quality control purposes only. Responsibilities of the CQC Manager are outlined below:

- Coordination with the Independent CQA Officer.
- Manage the performance of all onsite and offsite inspections and testing.
- Review of the Remedial Design for clarity and completeness.
- Schedule and coordinate inspection activities.
- Direct and support personnel in performing observations and tests.
- Evaluate the results of the inspections and testing.
- Notify the Resident Superintendent of acceptance or rejection of the work and prepare the Non-Compliance Notifications, as necessary (Section 4.6.5).
- Manage documentation of all inspections and testing, and notifications to the Resident Superintendent through Daily Quality Control reports (Section 4.6.4).
- Maintain project records.

In addition the CQC Manager will interact with the remedial construction personnel in order to obtain required samples and to observe work procedures and practices and with equipment and material suppliers in order to assure delivery of that which was specified for construction in the Remedial Design Technical Specifications. The CQC Manager may also be required to interact with the Remedial Design Project Management staff and the Independent CQA Officer on construction related issues, and with regulatory authorities for concurrence on certain waste characterizations and disposal options.

2.3 Personnel Qualifications

2.3.1 General

Personnel assigned to this project will have the necessary training, education, qualifications, and experience required to perform their specific duties. The required qualifications of key personnel is described in the following paragraphs.

2.3.2 ECC Trust's Engineer

The ECC Trust's Engineer (Engineer) will be the representative of the ECC Trust and will be responsible for coordinating approval of all Field and Design Changes (Section 5.1) and communications between the Remedial Contractor and the ECC Trust.

The Engineer will be a Professional Engineer with demonstrated experience in the construction industry and should possess adequate knowledge of the design/construction industry and be familiar with environmental laws and regulations.

2.3.3 Independent Construction Quality Assurance (CQA) Officer

The Independent CQA Officer is required to be "independent" and autonomous from the Construction Contractor(s) and must possess a professional and ethical background having similar previous experience in relationship to the quality assurance/quality control activities which are to be implemented. The Independent CQA Officer must have demonstrated capabilities in performance of the required testing and evaluation activities relevant to the intended construction.

2.3.4 Remedial Design Project Manager

The Remedial Design Project Manager is an engineer with a civil, chemical, and environmental engineering background having experience in those aspects related to design, construction, and waste handling for the project scope of work.

2.3.5 Remedial Contractor Resident Superintendent

The Remedial Contractor Resident Superintendent shall have demonstrated experience in construction and related QA/QC aspects, and possess demonstrated knowledge of hazardous and non-hazardous waste handling and disposal requirements.

2.3.6 Remedial Contractor Quality Control (CQC) Manager

The CQC Manager has responsibility for all aspects of their firm's CQC Plan (Section 4.3) implementation. He has a responsibility requiring knowledge and experience to properly assess any given situation arising out of the construction process. The CQC Manager shall possess sufficient practical technical and administrative experience to execute and record relevant inspection and review activities successfully.

3.0 QUALITY ASSURANCE OBJECTIVES

Quality Assurance for the construction of the Site Preparation and Material Removal (SPMR) components will be maintained by planned and systematic actions which will ensure that the components conform with the project requirements and will perform satisfactorily.

The objectives of this CQAP are:

- To establish quality assurance guidelines for all of the SPMR phase construction.
- To maintain quality control through standardized procedures, documentation, inspections, and reporting.
- To establish the types of inspection, testing, and sampling activities and to provide required frequency.
- To assure inspection and sampling are carried out in accordance with established quality control procedures.

The quality control required for the construction aspects of the support zone components will be achieved by applying field observations and material certifications supplemented by testing standards as set forth by the American Society for Testing and Materials (ASTM), and requirements of the Indiana Department of Highways (IDOH), Standard Specifications (1988).

The specific procedures to be followed to achieve the quality assurance objectives for each element of work are described in the appropriate sections of this CQAP.

4.0 CONSTRUCTION COMPONENT EXAMINATION, MEASUREMENT, AND TESTING

The adequacy of workmanship during Site Preparation and Material Removal construction will be determined by visual examination, measurements, certifications, and testing. The extent to which each of these procedures will be employed is provided in Appendix A. The relative amounts of each type of inspection will vary as the work progresses. During the initial construction stages, the judgement of the CQC staff should be confirmed at frequent intervals by tests and measurements until their ability at determining adequacy by visual means is established. In some cases the amount of measuring and testing can be reduced as the work progresses, but it will not be eliminated.

Each type of inspection determines whether requirements of the plans and Technical Specifications are being met. The protocols for inspection are provided in Appendix B.

The CQC Manager has the authority to reject any workmanship or construction which does not meet the intent or the requirements of the Remedial Design.

4.1 Materials Inspection and Certifications

Materials used to construct the support zone components will be tested by, or at the direction of, the CQC Manager. The testing will occur before or during construction to assure compliance with the Remedial Design Technical Specifications. All testing will be performed in accordance with the methods referenced in Appendix A.

Manufactured items, particularly the culvert pipes, pre-cast sumps, synthetic membranes, require manufacturer's certification verifying that those items meet the requirements of the Remedial Design Technical Specifications. The CQC Manager will review the data provided and visually inspect the item to assure compliance. The CQC Manager has the authority to reject the item, require additional information in keeping with the limits of the Remedial Design Technical Specifications, or conduct additional inspection as may be required.

Should the testing and/or certification establish that the material, item, or workmanship is not in accordance or does not meet the requirements of the Remedial Design, the following actions will be required.

- Manufactured Items - Any manufactured item which does not meet the requirements or intent of the Remedial Design will be rejected and not used in the construction.

- Construction Materials - Any materials which do not meet the requirements or intent of the Remedial Design will be rejected and not used in the construction.

- Workmanship - Any workmanship which does not meet the requirements or intent of the Remedial Design, or acceptable construction practice will be repaired, redone, or removed.

4.2 Measurements

4.2.1 General

The intent of the inspection and sampling strategies is to evenly distribute sample and in-situ test locations throughout the construction unit to provide a representative measurement of as-built quality. The particular location of any one sample or inspection will be left to the discretion of the Independent CQA Officer and the CQC Manager. Materials not meeting Remedial Design Technical Specifications shall be rejected.

4.3 Contractor Quality Control Plan

The Contractor will be required to develop and submit to the Engineer a Contractor Quality Control Plan (CQCP) as specified in Section 01400 of the Remedial Design Technical Specifications. The Remedial Contractor will be responsible for the workmanship of his labor force and any subcontractors used during construction. The Remedial Contractor will provide the CQC Manager and staff who will be responsible for testing of all active and completed construction elements and workmanship as outlined in the CQCP. The CQC Manager and staff will work separately from the construction team and will provide quality control reports to the Resident Superintendent and the Independent CQA Officer.

4.4 Geosynthetics Testing

4.4.1 Geomembranes

The manufacturer shall provide the CQC Manager a quality control certificate for each roll of geomembrane prior to shipment. The certificate will list the roll numbers and identification, sampling procedures, and test results.

4.4.1.1 Conformance Testing

Upon arrival at the Site, the CQC Manager will sample the rolls of geomembrane. The sampling frequency shall be one sample per lot or one sample per 100,000 square feet, whichever is less. Samples shall be taken across the entire width of the roll but not within the first 3 feet of the roll. Samples shall be tested for the following properties:

- Density (ASTM D1505)
- Carbon Black Content (ASTM D1603)
- Carbon Black Dispersion (ASTM D3015)
- Thickness (ASTM D751)
- Tensile Characteristics (ASTM D638)
- Melt Flow Index (ASTM D1238)

4.4.2 Geotextiles

The geotextile manufacturer shall provide a letter of certification indicating the provided geotextiles meet the minimum average roll values for the specified material. Each roll shall be labeled by the manufacturer with the following:

- Manufacturer's name
- Product identification
- Unique roll and lot number
- Roll dimensions
- Any special handling requirements

4.4.2.1 Conformance Testing

Upon arrival at the Site, the CQC Manager will sample the rolls of each specified type of geotextile. The sampling frequency shall be one sample per lot or one sample per 100,000 square feet, whichever is less. Sampling locations vary by test but not within the first 3 feet of the roll. The size of the sample shall be 3 feet by width of roll. Samples shall be tested for the following properties:

- Apparent opening size (ASTM D4751)
- Grab strength (ASTM D 4632)
- Trapezoidal tear strength (ASTM D4533)
- Puncture strength (ASTM D4833)
- Burst strength (ASTM D3786)
- Abrasion resistance (ASTM D4157 and D4158)

4.5 Geosynthetic Installation

4.5.1 Geomembranes

Personnel performing seaming operations shall be qualified by experience or by successfully passing seaming tests. At least one seamer shall have experience seaming a minimum of 1,000,000 square feet of HDPE geomembrane using the same type of seaming equipment that is used at the Site.

The Contractor will provide the Engineer with a list of proposed seaming personnel and their professional records. Proposed personnel deemed sufficiently inexperienced shall not be accepted by the Engineer.

Test seams shall be made on pieces of geomembrane liner to verify that seaming conditions are adequate. Test seams shall be made at the beginning of each seaming period and at least once each 4 manhours (after lunch) for each seaming apparatus used that day. Each seamer shall make at least one test seam each day.

Test seam samples shall be at least 2 feet long and 1 foot wide with the seam centered lengthwise. Two adjoining specimens 1 inch wide shall be cut from the test seam sample. These specimens shall be tested in the field in shear and peel, respectively, by hand or tensiometer, and shall not fail in the seam. If a team seam fails, the entire operation shall be repeated. If the additional test seam fails, the seaming apparatus or seamer shall not be accepted or be used for seaming until two consecutive successful test seams are achieved.

The Contractor will nondestructively test all field seams over their full length using a vacuum test unit or air pressure (fusion process). Testing shall be done as the work progresses and not at the completion of all field seaming.

Locations where seams cannot be nondestructively tested shall be observed by the CQC Manager for uniformity and completeness.

Vacuum testing procedures and requirements consist of the following:

- Vacuum testing shall be conducted by utilizing a steel box with a clear-view glass top, a rubber gasket on the open bottom perimeter, a pressure gauge on the inside, and a vacuum hose connection to a steel vacuum tank and pump assembly equipped with a rubber pressure/vacuum hose with fittings and connections.

- The box shall be placed over a seam section that has been thoroughly saturated with a soapy water solution. The rubber gasket on the bottom perimeter of the box must fit snugly against the soaped seam section of the liner.

- When 3 to 5 inches of vacuum is achieved, the seam shall be inspected for pinholes, porosity, or nonbonded areas. Test time shall be a minimum of 30 seconds per test section.

- If a void is detected, it shall be properly marked for subsequent repairs.

Air pressure testing procedures and requirements are as follows:

- An air pump must be equipped with a pressure gauge capable of generating and sustaining 25 to 30 psi pressure, a hose, fittings and connections, and a sharp needle or approved alternate device.

- Seams must be sealed. The needle shall be inserted in the cavity created by the fusion weld, apply 25 to 30 psi pressure for 5 minutes.

- The seam must be inspected for defects, pinholes, porosity, and nonbonded areas.

- If a void is detected, it shall be marked and repaired.

Destructive seam testing shall be performed as follows:

- Location and Frequency

  - No less than an average of one test must be conducted per 500 feet of seam length or per day whichever is greater.

  - Additional test locations shall be determined during seaming at the CQC Manager's discretion. Selection of such locations may be prompted by suspicion of excess crystallinity, contamination, offset welds, or any other potential cause of imperfect welding.

  - The Contractor will not be informed in advance of the locations where the seam samples will be taken.

- Sampling Procedures

  - Samples shall be cut at locations designated by and under the observation of the CQC Manager in order to obtain laboratory test results prior to completion of liner installation. Each sample shall be numbered and the sample number and location identified on the panel layout drawing.

  - Holes in the geomembrane resulting from destructive seam sampling shall be immediately repaired. The new seams in the repaired area shall be nondestructively tested.

- Size of Samples

  - Samples shall be 12 inches wide by 38 inches long with the seam centered lengthwise. One 1-inch wide strip shall be cut from each end of the sample, and these strips shall be tested in the field, by hand or tensiometer, for shear and peel, respectively and shall not fail in the seam. The remaining sample shall be cut into three equal parts (minimum 12 inches each) and distributed as follows:

    -- One portion for the Remedial Contractor's independent laboratory testing (12 inches by 12 inches).

    -- One portion for the CQC Manager for archive storage (12 inches by 12 inches).

- Remedial Contractor's Laboratory Testing

  - Test results from the Remedial Contractor's independent laboratory shall be submitted to the Engineer as soon as they become available.

- Procedures for Destructive Test Failure

  - The following procedures shall apply whenever a sample fails the field destructive test or the laboratory test (Remedial Contractor's independent laboratory):

    -- The Remedial Contractor will reconstruct the seam between the failed location and any passed test locations.

    -- The Remedial Contractor will retrace the welding path to an intermediate location (at a 20-foot minimum from location of a failed test) and take a small sample for an additional field test. If this additional sample passes the test, the seam shall be reconstructed between that location and original failed location. If this sample fails, the process shall be repeated.

    -- In any case, all acceptable seams shall be bounded by two passed test locations in both directions and one sample for destructive testing shall be taken within the reconstructed area.

    -- Whenever a sample fails, additional testing may be required for seams that were welded by the same welder and welding apparatus or welding during the same time shift.

4.5.2 Geotextiles

The CQC personnel shall ensure that geotextiles have a minimum of a 2-foot overlap. The personnel shall notify the CQC Manager of any problems.

All holes or tears in the geotextile shall be repaired by patching with the same geotextile. The patch shall have a minimum of a 3-foot overlap in all directions beyond the area to be repaired and shall be sewn into place. On slopes steeper than 20 percent, the patch may not be placed any closer than 1 inch (25 mm) from any edge. If a roll has a tear which exceeds 20 percent of the width of the roll, that portion of the roll shall be removed and replaced.

The CQC personnel shall observe all repairs and verify that each conforms with the above procedures. The personnel shall notify the CQC Manager and the Resident Superintendent of any problems or deviations from the specified procedures.

The cover material shall be placed in such a manner to assure that the geotextiles are not damaged. Care shall be taken to minimize any slippage of the geotextile and to assure that no tensile stress is induced in the materials.

4.6 Quality Assurance Documentation

4.6.1 General

The CQAP will not be effective unless all critical construction activities that should be inspected are designated and personnel are assigned to each inspection task by the CQC Manager. This is accomplished by using standardized documentation forms covering the anticipated items that are to be inspected. The following reports and records will be prepared by the individuals indicated with distribution as noted. Table 4-1 indicates the responsible preparers/recipients and schedule of the required submittals for the Site Preparation and Material Removal phase. Appendix C provides the forms and logs required for documentation of the CQC activities.

4.6.2 Submittal Register

The Submittal Register provides a record of all submittals and transmittals related to materials and construction. Examples of items to be recorded include construction drawings, shop drawings, samples, equipment and materials, certifications, and test data. The Resident Superintendent will maintain this record, numbered sequentially, and will send copies to the Independent CQA Officer, the Remedial Design Project Manager, the CQC Manager, and the Engineer on an as-needed basis.

TABLE 4-1

SUBMITTALS LIST

Submittal	Preparer of Submittal	Recipient of Submittal	Schedule of Submissions
Contractor QC Plan	Remedial Contractor	Engineer	Three Working Days Prior to the Pre-Construction Conference
Submittal Register	Remedial Contractor Resident Superintendent	CQC Manager, Independent CQA Officer, Remedial Design Project Manager, and Engineer	At the Pre-Construction Conference and as needed
Daily Report	Remedial Contractor Resident Superintendent	Independent CQA Officer and Engineer	Daily
Daily QC Reports	Remedial Contractor QC Manager	Resident Superintendent and Independent CQA Officer	Daily
Non-Compliance Notification	Remedial Contractor QC Manager[1]	Independent CQA Officer and Engineer	Per Occurrence
Report of Field Changes	Remedial Contractor Resident Superintendent	Independent CQA Officer (To File Original), Engineer, and Remedial Design Project Manager	Per Occurrence
Transmittal Form	As Required	As Required	As Required
Photographic Reporting Data Sheet	Remedial Contractor Resident Superintendent	Remedial Design Project Manager, Independent CQA Officer, and Engineer	Fifteen days after work completion
Corrective Actions Report	Remedial Contractor Resident Superintendent	Engineer[2]	As necessary
Progress Report	Remedial Contractor Resident Superintendent	Remedial Contractor Project Manager, and Engineer	Monthly
Final Certification of Completion	Remedial Contractor Project Manager	Engineer	Seven Days after Work Completion

Notes

(1) The Independent CQA Officer and Regulatory Representatives may issue separate form of notification.

(2) Corrective Actions will differ in the need for approvals and concurrent (see Section 5.2).

4.6.3 Daily Report

The daily report will be prepared by the Resident Superintendent. This report is a summary of the day's activities which includes:

- Data on weather conditions
- Reports of all meetings held and their results
- Description and location of work areas
- Description of offsite materials received
- Decisions made regarding approval of materials or work done and/or corrective actions to be taken in instances of substandard quality

All of the daily inspection data sheets will be numbered sequentially and attached to this report. The originals will be filed with the Resident Superintendent and copies sent to the Independent CQA Officer and the Engineer. A permanent and complete record of this information will be kept at the project Site.

4.6.4 Daily Quality Control Reports

Daily Quality Control Reports shall be prepared to document inspections and field tests for the principal operations incorporated in the construction of the support zone components. Appended to these reports will be recorded pertinent observations in the form of notes, charts, sketches, photographs, or any combination of these. The original (or copy) will be filed by the CQC Manager with copies sent to the Resident Superintendent and the Independent CQA Officer.

A Daily QC Report shall be prepared that summarizes all visual observations and inspections and materials testing and inspections performed for work items completed that day.

Specific materials and workmanship reports shall be attached to the Daily QC Report. These will include the following:

- Geomembrane Trial Weld Report
- Geomembrane Panel Placement QA Checklist
- Geomembrane Panel Seaming QA Checklist
- Geomembrane Seam Testing QA Checklist
- Geomembrane Field Destructive Test Log
- Geomembrane Repair Log

4.6.5 Non-Compliance Notifications

Non-Compliance Notifications will be prepared to document problems encountered and the corrective measures taken to alleviate the problem. The problems may relate to materials or workmanship that does not meet the requirements of the Remedial Design. Notifications will be prepared as necessary by the CQC Manager with concurrence by the Resident Superintendent. The original shall be filed by the CQC Manager with copies sent to the Independent CQA Officer and the Engineer. The Independent CQA Officer and representatives of regulatory authority may issue separate forms for notification of non-compliance.

4.6.6 Report of Field Change

A report indicating changes to the originally specified construction will be prepared by the Resident Superintendent which will describe, in detail, the recommended change or changes that are made. Indication will be made as to whether this is an isolated case or general condition which will affect or change additional work or future specifications and drawings. Changes to basic design or major changes require concurrence between parties as identified in Section 5.1. The original shall be filed by the CQC Officer with copies sent to the Independent CQA Officer, the Engineer, and the Remedial Design Project Manager.

4.6.7 Transmittal Form

A standard transmittal form will be required when submitting any type of QC documentation (e.g., report, request, manufacturers/suppliers certifications, shop drawing, etc.). The transmittal form shall be used by all parties involved with the ECC Site construction.

4.6.8 Photographic Reporting Data Sheet

A pictorial record of the work progress, problems, and corrective measures will be handled through photographic documentation generated during construction and controlled by the Resident Superintendent. Photographs will be identified as to the roll number, the frame number, the date, and the project. Photographs will document in-progress work or completed physical components. A description will be included of pertinent objects in the photograph identified and recorded. The negatives will be filed in the order taken and stored separately from the photographs. A data sheet, numbered sequentially, will be prepared by the Resident Superintendent, with copies to the Independent CQA Officer, the Remedial Design Project Manager, and the Engineer. Two additional prints of photographs will be obtained, one set for the Remedial Design Project Manager and one set for the Engineer.

4.6.9 Storage of Records

During the construction of the support zone components, the Resident Superintendent will be responsible for all construction documents, including originals of reports and data sheets described in this section. Duplicates will be stored with the Engineer. The Independent CQA Officer will also receive a copy of the records.

The documentation will be maintained throughout the construction period until Final Certification of Completion, at which time the Resident Superintendent will transfer his file to the Engineer.

5.0 FIELD CHANGES AND CORRECTIVE ACTION

5.1 Field and Design Changes

Once under construction, site conditions may be encountered that may require revisions or changes to the Remedial Design. Changes will be accomplished through interactions between the Remedial Contractor, the ECC Trust's Engineer, and the Remedial Design Project Manager. All proposed changes will be evaluated by these parties to determine if they are minor or major. Such field changes, when necessary, shall be implemented according to the following criteria:

- Minor changes, such as adjusting the position of an item, will require the approval of the Engineer.

- Major changes, such as redirection of diversion channels, will require written approval of the Engineer, the Remedial Design Project Manager, and the U.S. EPA Remedial Project Manager.

- Changes in the basic design, such as an adjustment of the Remedial Design Technical Specifications or size of a component, will require the written approval of both the Engineer and the Remedial Design Project Manager.

A "minor change" is defined as a change where limited interaction of oversight contractors or regulators must be involved, such as the decision to use a thicker aggregate base within the support zone roadways or a mechanical modification in equipment or parts.

A "major change" is defined as a change in the design of the remedial components, such as the change in the configuration of the support zone facilities. This type of change will require the additional effort of the Remedial Design Project Manager with concurrence between all parties (i.e., ECC Trust, IDEM, and U.S. EPA).

After concurrence between the abovementioned parties above has been reached warranting any major change, the ECC Trust's Engineer will notify U.S. EPA and IDEM prior to any redesign work.

All changes will require approval through a Report of Field Change (Section 4.6.6) form. Design changes will be adjusted within the Remedial Design Technical Specifications.

5.2 Construction Problems and Corrective Actions Report

Reports describing special construction situations, as required by the Engineer, shall be prepared by the Remedial Contractor Resident Superintendent and cross-referenced to specific observation logs and test data sheets. These reports shall include the following information:

- An identifying sheet number for cross-referencing and document control.
- A detailed description of the situation or deficiency.
- The location and probable cause of the situation or deficiency.
- How and when the situation or deficiency was found or located.
- Documentation of the corrective action taken to address the situation or deficiency.
- Final results of any responses.
- Any measures taken to prevent a similar situation from occurring in the future.
- The signature of the Remedial Design Project Manager, the CQC Manager, the Independent CQA Officer, and the U.S. EPA Remedial Project Manager (if required) indicating concurrence.

The Remedial Contractor Project Manager shall be made aware of any significant recurring non-conformance with the Remedial Design by the CQC Manager. The Remedial Contractor Resident Superintendent shall then determine the cause of the non-conformance and recommend appropriate changes in the Remedial Design to the CQC Manager and the Engineer. These changes will be submitted to the Remedial Design Project Manager, if necessary, for approval (see Section 5.0).

U.S. EPA and IDEM will be notified by the Engineer if construction problems or deficiencies are found which will necessitate a major change in design or that which would produce a change in schedule.

6.0 QUALITY ASSURANCE REPORTS TO MANAGEMENT

6.1 Construction Activity Reporting

The Engineer shall prepare progress reports as required by the Consent Decree for the ECC Trust which summarize construction activities and the results of observations and tests. Monthly progress reports shall be prepared by the 14th day of each month to document the status of the work done in the preceding month.

All reporting to IDEM and U.S. EPA will be made through and by the ECC Trust's Engineer. Inspection results and sample testing data will be provided from the Remedial Contractor Resident Superintendent to the Engineer, who will in turn provide monthly progress reports to IDEM and U.S. EPA incorporating the information. QA/QC information, as well as all other documentation, will be available onsite with the Remedial Contractor Resident Superintendent.

At the completion of the work, final documentation shall be prepared and shall include supporting field and laboratory test results.

6.1.1 Remedial Contractor's Monthly Progress Reports

The Remedial Contractor Resident Superintendent shall prepare a monthly progress report at submittal dates established at the Pre-Construction Conference and submit it to the Remedial Contractor Project Manager and the Engineer. As a minimum, this report shall include the following information:

- A unique identifying sheet number for cross-referencing and document control.
- The date, project name, location, and other information.
- A summary of work activities during progress reporting period.
- A summary of construction situations, deficiencies, and/or defects occurring during the progress reporting period.
- A summary of test results, failures and retests.
- The signature of the CQC Manager.

6.1.2 Final Certification of Completion

At the completion of the SPMR work, the Remedial Contractor Project Manager shall submit to the Engineer the signed Final Certification of Completion. At a minimum, the Final Certification of Completion shall include:

- Summaries of all construction activities.
- Observation logs and test data sheets including sample location plans and supporting field and laboratory test results.
- Construction problems and solutions reports.
- Changes from design and material specifications.
- Record plans (as-builts).
- A summary statement signed by the Remedial Contractor Resident Superintendent and CQC Manager that agrees with the conclusions of the Final Certification of Completion.

APPENDIX

A

APPENDIX A

INSPECTION AND TEST METHODS

TABLE A-1

INSPECTION AND TEST METHODS
PAGE 1 OF 5

Item	Inspection Method and Frequency	Test Method Reference
Access Road and Support Zone Surfaces		
Materials/Workmanship		
Suitable Fill	Observation (Verify Compliance to Design) - Daily	NA
	Grain Size Analyses - (1) Representative Borrow Area Sample Per Day for Confirmation of Specification	ASTM D422
Base Course (IDOH No. 2)	Observation (Verify Compliance to Design) - Daily	NA
	Supplier's Certificate - With First Shipment of Item	NA
Surface Course (IDOH No. 53)	Observation (Verify Compliance to Design) - Daily	NA
	Supplier's Certificate - With First Shipment of Item	NA
Geotextile	Observation (Verify Compliance to Design) - Daily	NA
	Apparent Opening Size	ASTM D4751
	Grab Strength	ASTM D4632
	Trapezoidal Tear Strength	ASTM D4533
	Puncture Strength	ASTM D4833
	Burst Strength	ASTM D3786
	Abrasion Resistance	ASTM D4157 and D4158
	Manufacturer's Certificate - At Time of Delivery of Item	NA

TABLE A-1

INSPECTION AND TEST METHODS
PAGE 2 OF 5

Item	Inspection Method and Frequency	Test Method Reference
Decontamination Pad		
Materials		
Aggregate Subbase (4 inch IDOH No. 4)	Observation (Verify Compliance to Design) - Daily Supplier's Certificate - With First Shipment of Item	(Rolled and Approved Only) NA
Precast Concrete Sump	Observation (Verify Compliance to Design) - Daily Manufacturer's Certification for Strength, Air Content, Slump - of Item	NA ASTM C94 (by supplier)
Overflow Pipe (6 inch Schedule 80 PVC)	Observation (Verify Compliance to Design) - Daily Manufacturer's Certificate - At Time of Delivery of Item	NA NA
Cast Iron Grates, Lids, and Frames	Observation (Verify Compliance to Design) - Daily Manufacturer's Certificate - At Time of Delivery of Item	NA NA
Pressure Treated Lumber	Manufacturer's Certificate - At Time of Delivery of Item	NA
Geotextile Screen	Observation - Daily Manufacturer's Certification - At Time of Delivery of Item	NA NA
PVC Waterstops and Link-Seal	Manufacturer's Certification - At Time of Delivery of Item	NA

TABLE A-1

INSPECTION AND TEST METHODS
PAGE 3 OF 5

Item	Inspection Method and Frequency	Test Method Reference
Workmanship		
Installation of Precast Manhole	Observation (Verify Compliance to Design) - Daily	NA
Overflow, Precast Manhole, and Trench Sump Connections	Observation (Verify Compliance to Design) - Daily	NA
Seals (Waterstops and Link-Seal)	Observation (Link-Seal Placement and Volume) - Daily	NA
Cast-in-Place Concrete	Observation (Verify Compliance to Design) - Daily	NA
	Slump - One Per Truckload	ASTM C143
	Compressive Strength - One Per Day of Pouring	ASTM C31
Formwork	Observation (Verify Compliance to Design) - Daily	NA
Wastewater Storage Pad		
Materials		
Pre-Fabricated HDPE Sump	Manufacturer's Certification - At Time of Delivery of Item	NA
Geomembrane (HDPE)	Manufacturer's Certification - At Time of Delivery of Item	NA
	Density	ASTM D1505
	Carbon Black Content	ASTM D1603
	Carbon Black Dispersion	ASTM D3015
	Thickness	ASTM D751
	Tensile Characteristics	ASTM D638
	Melt Flow Index	ASTM D1238

TABLE A-1

INSPECTION AND TEST METHODS
PAGE 4 OF 5

Item	Inspection Method and Frequency	Test Method Reference
Perforated HDPE Pipe	Manufacturer's Certification - At Time of Delivery of Item	NA
Geotextile Fabric	Manufacturer's Certification - At Time of Delivery of Item	NA
Workmanship		
Cast-in-Place Concrete	Observation (Verify Compliance to Design) - Daily	NA
	Slump - One Per Truckload	ASTM C143
	Compressive Strength - One Per Day of Pouring	ASTM C31
Formwork	Observation (Verify Compliance to Design) - Daily	NA
Extrusion Welds (Pipe to Sump)	Observation (Verify Compliance to Design) - Daily	NA
Excavation and Anchor Trench	Observation (Verify Compliance to Design) - Daily	NA
Placement of Aggregates and Liner	Observation (Verify Compliance to Design) - Daily	NA
Geomembrane (HDPE)	Vacuum Testing	CQAP Section 4.5.1
	Air Pressure Testing	CQAP Section 4.5.1
	Destructive Seam Testing	CQAP Section 4.5.1
Geotextile	Observation (Verify Compliance to Design) - Daily	NA

TABLE A-1

INSPECTION AND TEST METHODS
PAGE 5 OF 5

Item	Inspection Method and Frequency	Test Method Reference
Diversion Channels		
Materials		
Riprap	Observation (Verify Compliance to Design) - Daily	NA
	Supplier's Certificate - At Time of Delivery of Item	NA
Culverts (Reinforced Concrete Pipe)	Observation (Verify Compliance to Design) - Daily	NA
	Manufacturer's Certification - At Time of Delivery of Item	NA
Workmanship		
Trench Excavation	Measurement - Maximum Tolerance $\pm$0.20 Feet	NA
	Horizontal/Vertical - Daily	NA
Fencing		
Materials		
General Fencing	Observation (Verify Compliance to Design) - Daily	NA
	Manufacturer's Certification - At Time of Delivery of Item	NA
Gates	Observation (Verify Compliance to Design) - Daily	NA
	Manufacturer's Certification - At Time of Delivery of Item	NA
Workmanship		
Post Spacing and Placement	Observation (Verify Compliance with Survey) - Daily	NA
Gate Locations	Observation (Verify Compliance to Design) - Daily	NA

B

APPENDIX B

INSPECTION PROTOCOLS

INSPECTION PROTOCOLS

General

This appendix provides the basic elements which will require inspection activities (observations and tests) necessary to ensure that the support zone components are constructed to meet the Remedial Design.

Access Road and Support Zone Surfaces

The access road and support zone surface should provide an evenly contoured surface free of vegetation and other objectionable and deleterious materials. Daily observations are necessary to address the following items as a minimum:

- Work area location
- Area defined by survey or other means
- Area cleared of vegetation and appropriate stockpile of removed topsoils
- Area cleared of objectionable and other deleterious materials
- Any springs and seeps
- Disposition of any springs and seeps
- Compacted fill, base, and finished surface aggregate dimensions
- Replacement of topsoil layer along area shoulders
- Problems

Decontamination Pad

Elements associated with the decontamination pad include the pre-cast concrete manhole, PVC overflow pipe, and grating. Inspections required for these items and associated work include:

- Pad location.
- Cast-in-Place concrete.
- Depth of sump trench.
- Visual checks of materials for compliance to Remedial Design Technical Specifications (pipes, pre-cast manhole, rebar, trench frame, welded wire

reinforcement, geotextile screen, pressure-treated lumber, waterproof mortar, and water stops, etc.).

- Dimensions (pad, sump trench, curb, etc.).
- Slopes (concrete and overflow pipe).
- Visual check or placement of water stops and waterproof mortar.
- Visual check on screen placement and lumber support network.
- Tests results (concrete).
- Problems.

Wastewater Storage Pad

The elements to be considered for inspection concerning the wastewater storage pad are:

- Pad location
- Excavation and anchor trench location
- HDPE liner condition
- Geotextile separating fabric
- Pre-fabricated HDPE sump
- Perforated HDPE pipe
- Material certifications received
- Visual checks on placement of aggregate, HDPE pipe, and sump
- Visual checks on extrusion welds connecting pipe to sump
- Seaming
- Slope
- Dimensions
- Problems

Support and EZ Boundary Fence and Gates

Fencing will be placed to separate outside property from the support and EZ areas with gates located at required points of entry and exit. Aspects to be considered in the placement of fencing and gates are:

- Location (surveyed lines)
- Check of materials

- Positioning and swing of gates
- Problems

Diversion Channels

Diversion Channels will be placed as controls as shown on Drawing C-2 of the Remedial Design Drawings. Inspections required for these channels are:

- Location (survey lines)
- Trenching
- Riprap placement
- Visual check on riprap, culverts (RCP), revegetation

C

APPENDIX C

CQC REPORT FORMS

RESIDENT SUPERINTENDENT'S DAILY REPORT

ECC SITE
ZIONSVILLE, INDIANA
PROJECT NUMBER _____
REPORT NUMBER _____

Date: _____

Day	S	M	T	W	TH	F	S

WEATHER	Bright Sun	Clear	Overcast	Rain	Snow
TEMP.	To 32	32-50	50-70	70-85	85 up
WIND	Still	Moder	High	Report No.	
HUMIDITY	Dry	Moder	Humid		

Average Field Force

Name of Contractor	Non-manual	Manual	Remarks

Visitors

Time	Representing	Representing	Remarks

Equipment at the Site: _____

Construction Activities: _____

By: _____ Title: _____

Distribution:
1. Independent CQA Officer
2. ECC Trust's Engineer
3. Site File

ECC SITE
ZIONSVILLE, INDIANA
PROJECT NUMBER _____

Date: _____

Weather: _____

Work Performed: _____

DAILY QUALITY CONTROL REPORT
PAGE 2 OF 2

Date: _____

Material/Equipment Delivered (Identify Supplier and Quantity):

_____

_____

Results of Inspections (See Attached Inspection Report): _____

_____

_____

Results of Testing (See Attached Testing Report): _____

_____

_____

_____

_____

Verbal Instructions and/or Comments: _____

_____

_____

_____

Remarks (Including Deficiencies/Corrective Actions): _____

_____

_____

_____

CERTIFICATION: I certify that the above report is complete and correct and that I, or my authorized representative, have inspected all work performed this day by the prime contractor and each subcontractor and have determined that all materials, equipment, and workmanship are in strict compliance with the plans and specifications except as may be noted above.

_____ _____

Signature Date

Distribution: 1. Resident Superintendent
2. Independent CQA Officer

GEOMEMBRANE TRIAL WELD REPORT

ECC SITE
ZIONSVILLE, INDIANA
PROJECT NUMBER _____

Date: _____

Prepared By: _____ Device No.: _____

Material Type: _____ Seamer ID: _____

Thickness: _____ Seam Type: _____

	Sample ID No.	Specimen	Peel Adhesion	Bonded Seam Strength	Weather Conditions
	_____	1	_____	_____	Temp: _____
		2	_____	_____	Wind: _____
				Device Temp: _____	General: _____
Tested By:	_____			Preheat: _____	_____
Monitor:	_____	Time:	_____	Speed: _____	Location: _____
	_____	1	_____	_____	Temp: _____
		2	_____	_____	Wind: _____
				Device Temp: _____	General: _____
Tested By:	_____			Preheat: _____	_____
Monitor:	_____	Time:	_____	Speed: _____	Location: _____

Notes:

GEOMEMBRANE PANEL PLACEMENT
QUALITY ASSURANCE CHECKLIST
PAGE ____ OF ____

ECC SITE
ZIONSVILLE, INDIANA
PROJECT NUMBER _____

Date: _____

Date/Time	Panel No.	Mfg. Roll No.	Panel Length	Panel Width	Overlap	Temporary Loading	Subbase Condition	Monitor	Comments

GEOMEMBRANE PANEL SEAMING
QUALITY ASSURANCE CHECKLIST
PAGE ____ OF ____

ECC SITE
ZIONSVILLE, INDIANA
PROJECT NUMBER ____________________

Date: ____________

Date Seamed	Start Time	Finish Time	Seam No.	Panel No.	Seam Length	Seamer ID	Device No.	Temp. Setting	Destruct Sample ID	Destruct Sample Loc	Comments

GEOMEMBRANE SEAM TESTING
QUALITY ASSURANCE CHECKLIST
PAGE ____ OF ____

ECC SITE
ZIONSVILLE, INDIANA
PROJECT NUMBER ____________________

Date: ______________

Seam No.	Date Tested	Start Time	Finish Time	Initial Pressure	Final Pressure	Monitor ID	Tester ID	Vacuum Test	Results P/F	Verification of Repairs	Comments

GEOMEMBRANE FIELD DESTRUCTIVE TEST LOG
_____ LINER
PAGE ____ OF ____

ECC SITE
ZIONSVILLE, INDIANA
PROJECT NUMBER _____

Date: _____

Sample No.	Seam No.	Panel No.	Date Welded	Field Test Inspector	Date Field Tested	Field Test Results	Remarks

REPORT OF FIELD CHANGE
PAGE 1 OF 1

ECC SITE
ZIONSVILLE, INDIANA
PROJECT NUMBER _____

Date: _____

REFERENCE DATA

Specification Section No.: _____ Page No.: _____ Paragraph No.: _____

Drawing No.: _____ Entitled: _____

Sketch No.: _____ Dated: _____ Entitled: _____

DESCRIPTION

1. Detailed Identification of Problem or Reason for Change Request: _____

_____

_____

_____

2. Detailed Solution Proposed or Accomplished: _____

_____

_____

_____

_____

_____

3. Is the Problem an Isolated Case or General? _____

4. Submit Sketches as Necessary.

By: _____ Title: _____

Approved By: _____

Distribution:
1. Independent CQA Officer
2. ECC Trust's Engineer
3. Remedial Design Project Manager

ECC SUPERFUND SITE
SITE PREPARATION & MATERIAL REMOVAL
ZIONSVILLE, INDIANA

SUBMITTAL REGISTER
REGISTER NO. _____

DATE REC'D.	TRANS-MITTAL NO.	SPECIFICATION IDENTIFICATION (ITEM NO.)	SPECIFICATION PARAGRAPH NUMBER	DESCRIPTION OF SUBMITTAL	TYPE OF SUBMITTAL							NO. COPIES REC'D.	ACTIONS				ACTION ELEMENT	CONTRACTOR SCHEDULE DATES			INDEPENDENT CQA OFFICER ACTION DATES		DESIGN ENGINEER ACTION DATES		REMARKS
					DRAWING	SAMPLE	GUARAN	MFG DATA	CERTIF	TESTRPT	OTHER		NO EXCEPTIONS TAKEN	MAKE CORRECTIONS NOTED	REVISE AND RESUBMIT	REJECTED	TECH REVIEW BY	SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	SUBMITTED TO INDEPENDENT CQA OFFICER	ACTION	SUBMITTED TO DESIGN ENGINEER	ACTION	

BY: _____ TITLE: _____

DISTRIBUTION: 1. ECC TRUST'S ENGINEER 2. CONTRACTOR QC MANAGER 3. INDEPENDENT CQA OFFICER 4. DESIGN ENGINEER

GEOMEMBRANE REPAIR LOG
PAGE ____ OF ____

ECC SITE
ZIONSVILLE, INDIANA
PROJECT NUMBER ____________________

Date: ____________

Location	Description of Damage	Repair Type	Non-Destructive Testing
Panel No.: ________ Seam No.: ________ Welder ID: ________ Date Repaired: ______			Date: ________ Test Type: ________ Outcome: ________ Monitor ID: ________
Panel No.: ________ Seam No.: ________ Welder ID: ________ Date Repaired: ______			Date: ________ Test Type: ________ Outcome: ________ Monitor ID: ________
Panel No.: ________ Seam No.: ________ Welder ID: ________ Date Repaired: ______			Date: ________ Test Type: ________ Outcome: ________ Monitor ID: ________
Panel No.: ________ Seam No.: ________ Welder ID: ________ Date Repaired: ______			Date: ________ Test Type: ________ Outcome: ________ Monitor ID: ________
Panel No.: ________ Seam No.: ________ Welder ID: ________ Date Repaired: ______			Date: ________ Test Type: ________ Outcome: ________ Monitor ID: ________
Panel No.: ________ Seam No.: ________ Welder ID: ________ Date Repaired: ______			Date: ________ Test Type: ________ Outcome: ________ Monitor ID: ________
Panel No.: ________ Seam No.: ________ Welder ID: ________ Date Repaired: ______			Date: ________ Test Type: ________ Outcome: ________ Monitor ID: ________

ECC SITE
ZIONSVILLE, INDIANA
PROJECT NUMBER _____

To: _____

Date: _____ Time (AM/PM): _____ Inspector: _____

Contractor: _____ Contract No.: _____

You are hereby notified that ☐ tests ☐ inspection indicates that the _____

_____

does not conform to the Specifications requirements. The specification violated is

Section _____ Article/Paragraph _____. Under the provisions of the Technical

Specifications, the requirements are _____

_____

_____

Noncomplying work may be required to be removed and replaced at no cost to the ECC Trust.

It shall be your responsibility to determine the corrective action necessary, and to determine whether you wish to discontinue operations until additional investigations by the ECC Trust's Engineer or Independent CQA Officer confirm or refute the initial findings.

_____
Contractor Quality Control Manager

Noncompliance notice was received by the Resident Superintendent on _____(date).

By: _____ Title: _____

Distribution:
1. Independent CQA Officer
2. ECC Trust's Engineer
3. Site File

ECC SITE
ZIONSVILLE, INDIANA
PROJECT NUMBER _____

To: _____ Project: _____

_____ _____

Date: _____ Our Job No.: _____

We are enclosing _____ copies of the following:

- ☐ Subcontract Agreement
- ☐ Shop Drawings
- ☐ List of Materials
- ☐ Plans
- ☐ Specifications
- ☐ Submittals List
- ☐ Daily Report
- ☐ Progress Report
- ☐ _____
- ☐ Photograph Data Sheet
- ☐ Report of Field Change
- ☐ Daily QC Report
- ☐ Non-Compliance Notice
- ☐ Final Certification
- ☐ For Your Use
- ☐ For Review and Comment
- ☐ For Approval

Remarks: _____

_____

_____

_____

_____

Copies to: _____ By: _____

_____ _____

_____ _____

_____

ECC SITE
ZIONSVILLE, INDIANA
PROJECT NUMBER _____

Date: _____

Time Period Photographs Were Taken: _____

Roll Number: _____ Frame Number: _____

General Description of Photographs: _____

Any Specific Items for the Record: _____

By: _____ Title: _____

Distribution:
1. ECC Trust's Engineer
2. Independent CQA Officer
3. Remedial Design Project Manager

PROBLEM IDENTIFICATION AND CORRECTIVE ACTIONS REPORT

ECC SITE
ZIONSVILLE, INDIANA
PROJECT NUMBER _____

Definable Work Feature: _____ Date: _____

Inspector: _____ Problem I.D. Number: _____

Contractor: _____ Reference Dwg. Nos.: _____

Foreman: _____

Description of Situation/Deficiency: Reported by: _____

Cause of Problem and Location:

Method and Time of Problem/Deficiency Recognition:

PROBLEM IDENTIFICATION AND CORRECTIVE ACTIONS REPORT
(Continuation Sheet)

Steps Taken/Proposed to Resolve Problem:

Solution:

Proposed By: _____ Accepted by: _____

Date: _____

Signature: _____ Signature: _____

Verification of Solution: _____

The problem stated above has been resolved according to the agreed upon solution.

	Remedial Design Project Manager	CQC Manager	Independent CQA Officer	U.S. EPA Remedial Project Manager
Signature				
Title				
Date				

RESIDENT SUPERINTENDENT'S PROGRESS REPORT

ECC SITE
ZIONSVILLE, INDIANA
PROJECT NUMBER _____

Work Accomplished by Contractor (attach copies of appropriate supporting documentation such as invoices, contract documents, and photographs):

_____

_____

_____

_____

_____

Work Anticipated for Next Month: _____

_____

_____

_____

_____

_____

Problems (including percentage of completion and unresolved delays encountered, or anticipated that may affect future schedule and description of efforts made to investigate delays):

_____

_____

_____

_____

_____

By: _____ Title: _____
Contractor Quality Control Manager

Distribution:
1. Remedial Contractor Project Manager
2. ECC Trust's Engineer
3. Site File

RESIDENT SUPERINTENDENT'S
PROGRESS REPORT
(Continuation Sheet)

Work Accomplished by Contractor (Continued)

By: _____ By: _____
Resident Superintendent Contractor Quality Control Manager

Distribution:
1. Remedial Contractor Project Manager
2. ECC Trust's Engineer
3. Site File

FINAL CERTIFICATION
OF COMPLETION

ECC SITE
ZIONSVILLE, INDIANA
PROJECT NUMBER _____

To: ECC Trust Date: _____

Attn: ECC Trust's Engineer

From: _____

This is to certify that I, _____ am an authorized

official of _____

working in the capacity of _____

and have been properly authorized by said firm or corporation to sign the following statements pertaining to the subject contract:

> I know of my own personal knowledge, and do hereby certify, that the work of the Contract described above has been performed, and materials used and installed in every particular, in accordance with, and in conformity to, the Contract Drawings and Specifications.
>
> The Contract work is now complete in all parts and requirements, and ready for your final inspection.

By: _____

Title: _____

For: _____

Distribution: 1. Resident Superintendent
2. CQC Manager